

SEQUENCE LISTING

<110> INSTITUT PASTEUR
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE

<120> Method for in vivo modification of the synthesis activity of a metabolite by modification of a gene the activity of which is not the original activity.

<130> BIF 023274 PCT

<140> PCT/US/FR03/xxxxx

<141> 2003-03-28

<150> FR 03 03910

<151> 2003-03-28

<160> 15

<170> PatentIn version 3.1

<210> 1

<211> 474

<212> DNA

<213> Lactobacillus leichmannii

<220>

<221> misc_feature

<222> (1). (474)

<223> Coding region of the N-deoxyribosyltransferase gene (dtp)

<400> 1

atgc当地aaaa agacgatcta ctccggtgcc ggctgggtca ctgaccgcca aaacaaaagcc 60

tacaaggaag ccatggaagc cctcaaggaa aacccaacga ttgacctgga aaacagctac 120

gttcccctgg acaaccagta caagggtatc cgggttgatg aacaccggaa atacctgcat 180

gacaagggtt gggctacggc cacctacaac aacgacttga acgggatcaa gaccaacgac 240

atcatgctgg gtgtctacat ccctgacgaa gaagacgtcg gcctggcat ggaactgggt 300

tacgccttga gccaaggcaa gtacgtcctt ttggtcatcc cggacgaaga ctacggcaag 360

ccgatcaacc tcatgagctg gggcgtcagc gacaacgtga tcaagatgag ccagctgaag 420

gacttcaact tcaacaagcc gcgcttcgac ttctacgaag gtgccgtata ctaa 474

<210> 2

<211> 157

<212> PRT

<213> Lactobacillus leichmannii

<220>

<221> MISC FEATURE

<222> (1)-(157)

<223> N-deoxyribosyltransferase carrying the mutation G9S.

<220>

<221> MISC_FEATURE

<222>(9)...(9)

<223> serine/glycine mutation

Met Pro Lys Lys Thr Ile Tyr Phe Ser Ala Gly Trp Phe Thr Asp Arg
1 5 10 15

Gln Asn Lys Ala Tyr Lys Glu Ala Met Glu Ala Leu Lys Glu Asn Pro
20 25 30

Thr Ile Asp Leu Glu Asn Ser Tyr Val Pro Leu Asp Asn Gln Tyr Lys
35 40 45

Gly Ile Arg Val Asp Gly His Pro Gly Tyr Leu His Asp Lys Val Trp
50 55 60

Ala Thr Ala Thr Tyr Asn Asn Asp Leu Asn Gly Ile Lys Thr Asn Asp
65 70 75 80

Ile Met Leu Gly Val Tyr Ile Pro Asp Glu Glu Asp Val Gly Leu Gly
85 90 95

Met Glu Leu Gly Tyr Ala Leu Ser Gln Gly Lys Tyr Val Leu Leu Val
100 105 110

Ile Pro Asp Gly Asp Tyr Gly Lys Pro Ile Asn Leu Met Ser Trp Gly
115 120 125

Val Ser Asp Asn Val Ile Lys Met Ser Gln Leu Lys Asp Phe Asn Phe
130 135 140

Asn Lys Pro Arg Phe Asp Phe Tyr Glu Gly Ala Val Tyr
145 150 155

<210> 3

<211> 474

<212> DNA

<213> Lactobacillus leichmannii

<220>

<221> misc_feature

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<222> (1) .. (474)
<223> Coding sequence of mutated N-deosyribosyltransferase(NTD*).

<400> 3
atgcacaaaaa agacgatcta ctgcgtgtca ctgaccgcca aaacaaagcc 60
tacaaggaag ccatggaagc cctcaaggaa aacccaacga ttgacctgga aaacagctac 120
gttccctgg acaaccagta caagggtatc cgggttcatg aacacccgga atacctgcat 180
gacaagggtt gggctacggc cacctacaac aacgacttga acggatcaa gaccaacgac 240
atcatgctgg gcgtctacat ccctgacgaa gaagacgtcg gcctggcat ggaactgggt 300
tacgccttga gccaggcaaa gtacgtcctt ttggtcatcc cggacgaaaga ctacggcaag 360
ccgatcaacc tcatgagctg gggcgtcagc gacaacgtga tcaagatgag ccagctgaag 420
gacttcaact tcaacaagcc gcgcttcgac ttctacgaaag gtgccgtata ctaa 474

<210> 4
<211> 32
<212> DNA
<213> artificial sequence

<220>
<221> primer
<222> (1) .. (32)
<223> primer codBL for the amplification of the PyrC gene

<220>
<221> misc_feature
<222> (1) .. (1)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc_feature
<222> (2) .. (2)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc_feature
<222> (3) .. (3)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 4

nnnccgggc ttcttgctcg cttctcggtt gg 32

<210> 5
<211> 29
<212> DNA

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<213> Artificial sequence

<220>
<221> primer
<222> (1) .. (29)
<223> primer cynTR for amplifying the pyrC gene.

<220>
<221> misc_feature
<222> (1).7(1)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc_feature
<222> (2). (2)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 5
nnggatccgt ttgaccgttag cgggcgaac 29

<210> 6
<211> 29
<212> DNA
<213> Artificial sequence

<220>
<221> primer
<222> (1)..(29)
<223> Primer codBR allowing deletion of the CodA gene for the construction of
      the PAK9 strain.

<220>
<221> misc_feature
<222> (1)..(29)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 6
ngaattctta ttgcacactg ttagcctcc 29

<210> 7
<211> 27
<212> DNA
<213> Artificial sequence

<220>
<221> primer
<222> (1)..(27)
<223> Primer cynTL used in order to delete the CodA gene in the construction
      of the PAK9 strain.

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<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 7
n₁gaattc₂acg₃ actgg₄gttac₅ agc₆gagc₇

27

<210> 8
<211> 35
<212> DNA
<213> Artificial sequence

<220>
<221> Primer
<222> (1)..(35)
<223> Primer ycEL used to amplify a DNA fragment of E.coli (M G1655) containing the pyrC gene.

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc feature
<222> (3)-(3)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 8
n₁n₂n₃ccgggg₄ ccgac₅ctg₆ct ggccc₇act₈t₉ gac₁₀gg

35

<210> 9
<211> 38
<212> DNA
<213> Lactobacillus leichmannii

<220>
<221> Primer
<222> (1)..(38)
<223> Primer dinR used to amplify a DNA fragment of E.coli (M G1655) containing the pyrC gene.

<220>
<221> misc_feature

<222> (1)..(1)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 9
nnggatcccc cggcggcagc gcctacggaa ccgctgcc

<210> 10
<211> 37
<212> DNA
<213> *Lacobacillus leichmannii*

<220>
<221> Primer
<222> (1)..(37)
<223> Primer *yceR* used for the amplification of transforming plasmid DNA during the preparation of the PAK9 strain.

<220>
<221> Primer
<222> (1)..(37)
<223> Primer *yceR* used for the amplification of transforming plasmid DNA during the preparation of the PAK9 strain.

<220>
<221> misc_feature
<222> (1)..(1)
<223> Nucleotide comprising a base A, T, C or G.

<400> 10
ngaattctta atcagtaaat ggaatgacaa tttcgcc

<210> 11
<211> 34
<212> DNA
<213> *Lactobacillus leichmannii*

<220>
<221> Primer
<222> (1)..(34)
<223> Primer *dinL* used for the amplification of transforming plasmid DNA during the preparation of the PAK9 strain.

<220>
<221> misc_feature
<222> (1)..(1)

<223> Nucleotide comprising a base A, T, C or G.

<400> 11
ngaattcaaaa tcgttagcttc ctgttgtcat -tagg

34

<210> 12
<211> 22
<212> DNA
<213> Artificial sequence

<220>
<221> Primer
<222> (1)..(22)
<223> Primer FP23 for the amplification of the ntd gene.

<400> 12
cgccagggtt ttcccagtca cg

22

<210> 13
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<221> Primer
<222> (1)..(23)
<223> Primer RP23 for the amplification of the ntd gene.

<400> 13
agcggataac aatttcacac agg

23

<210> 14
<211> 30
<212> DNA
<213> Artificial sequence

<220>
<221> Primer
<222> (1)..(30)
<223> Primer for the amplification of the cloned ntd gene in pSU19 or its mutant.

<400> 14
gatatacata tgccaaaaaaaaa gacgatctac

30

<210> 15
<211> 36
<212> DNA
<213> Artificial sequence

<220>
<221> Primer
<222> (1)..(36)
<223> Primer for the amplification of the cloned ntd gene in pSU19 or its mutant.

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a nucleotide comprising a base A, T, C or G.

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a nucleotide comprising a base A, T, C or G.

<400> 15
nnggatcctt agtatacggc accttcgtag aagtgc

36